



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,718	09/15/2003	Nobuyuki Ito	CU-3360	1336
26530	7590	09/21/2006		
LADAS & PARRY LLP 224 SOUTH MICHIGAN AVENUE SUITE 1600 CHICAGO, IL 60604			EXAMINER LIN, JAMES	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/662,718	Applicant(s) ITO ET AL.	
	Examiner Jimmy Lin	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support for “heating while controlling the temperature of the substrate so the temperature of the substrate does not rise” (claim 1). The Applicant only provides support for heating the substrate while controlling the temperature of the stage, as opposed to controlling the temperature of the substrate. The Applicant teaches that “it is preferable to provide a temperature adjusting mechanism, which mainly cools, so as the stage temperature will not be raised” (paragraph bridging pgs. 16-17). Likewise, there is no support for controlling the temperature of the substrate using a chiller, a Peltier element, or a combination thereof.

The Applicant only provides support for using a Peltier element as a cooling mechanism in controlling the temperature (paragraph bridging pgs. 16-17). Claim 6 is open to using a Peltier element as a heating device (e.g., Mian ‘469 teaches a Peltier element used for heating, see discussion below). There is no evidence that the Applicant had possession and had presented written disclosure fairly indicating that the Applicant intended to claim the genus of all possible types of Peltier elements.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

Art Unit: 1762

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawase (U.S. Patent 6,730,357, hereafter '357) in view of Gordon et al. (U.S. Patent 4,811,038, hereafter '038), Nanto et al. (U.S. Patent 5,921,836, hereafter '836), and Pham et al. (U.S. Patent Application Publication 2002/0127344, hereafter '344).

'357 teaches a method for manufacturing an organic EL display by an ink jet method (col. 1, lines 17-25), wherein a uniform organic EL layer is formed by sequentially continuously carrying out processes of discharge-placing at least an organic EL material in a form of a solution on a substrate; and drying the organic EL material in a form of ink placed on the substrate by heating (col. 7, lines 3-67).

'357 is discussed above, but does not explicitly teach heating while relatively moving a heating device in X, Y, and Z directions to the substrate. However, '038 teaches that the substrate ink-jet ink may be heated by radiant heaters attached to and at the same level as the nozzles that travel with the nozzles (col. 6, lines 59-68). Also, '836 teaches that, when printing the red, green, and blue materials for pixels of electroluminescent devices such as plasma display screens, the nozzles may scan in the X- and Y- directions to provide complete coverage of the screen (col. 8, lines 45-61). Further, the nozzles may be moved in the z-direction to keep the clearance between the substrate and nozzles constant even when the substrate surface is not uniformly flat (col. 6, lines 3-14, 42-60; col. 7, lines 8-38). Therefore, taking the references as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have mounted radiant heaters on either side of the nozzles in order to have provided the drying with a reasonable expectation of success because '038 teaches that such is a suitable arrangement of nozzles and heaters to dry inks deposited on substrates, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to have moved the nozzles (and therefore the attached heaters) in the X-, Y-, and Z- directions relative to the substrate in order to have provided full coverage of all desired pixels and to have maintained a constant clearance between the substrate and the nozzles during printing. with the substrate compare to the ink-jet nozzle and an infrared heater over the substrate.

'357 is discussed above, but does not explicitly teach that the temperature of the substrate does not rise. '344 teaches that the substrate may already be heated at the time of deposition to accelerate the evaporation of the solvent [0006]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited the ink of '357 on an already heated substrate in order to have accelerated the drying process. Thus, the temperature of the substrate would not rise during application of the ink, particularly in view of the teachings of '357 that the substrate temperature has an effect on the process (col. 7, lines 31-33), thereby motivating keeping the substrate temperature constant in order to ensure process repeatability.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawase '357 in view of Gordon '038, Nanto '836, and Pham '344, as applied to claim 1 above, and further in view of Noguchi et al. (U.S. Patent 5,606,356, hereafter '356).

'357, '038, and '836 are discussed above. '836 teaches that radiant heaters are used, but does not explicitly teach that they are infrared heaters. However, the Examiner takes Official Notice that infrared heat is a notoriously well-known type of radiant heat used to dry inks. See, e.g., '356, col. 9, lines 11-19. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used infrared heat as the particular radiant heat of '357, '038, and '836 with a reasonable expectation of success because infrared heat is a notoriously well known type of radiant heat used to dry inks. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawase '357 in view of Gordon '038, Nanto '836, and Pham '344, as applied to claim 1 above, and further in view of Mian et al. (U.S. Patent 6,319,469, hereafter '469).

'357 is discussed above, but does not explicitly teach that the heater is a Peltier element. However, '357 is open to the use of other heating mechanisms (col. 7, lines 62-63). '469 teaches that Peltier heat elements are operative for heating (col. 50, lines 53-59). Therefore, it would

Art Unit: 1762

have been obvious to one of ordinary skill in the art at the time the invention was made to have used a Peltier heat element as the particular heater of '357 with a reasonable expectation of success because '469 teaches that it is a suitable tool for providing heat. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Response to Arguments

7. Applicant's arguments filed 7/20/06 have been fully considered but they are not persuasive.

The Applicant argues that Kawase does not disclose or suggest drying an organic EL material by heating while relatively moving the ink-jet nozzles in X, Y, and Z directions relative to the substrate. However, the currently amended claim 1 no longer requires such limitations. The claim has been amended to recite "heating while controlling the temperature of the substrate . . . and relatively moving a heating device" (claim 1). Even if the claim did recite such limitations, there is no support in the specification. The Applicant pointed out that pg. 25, lines 4-6 of the present specification has such support, but the Examiner does not see any teaching of heating while relatively moving the ink-jet nozzles in the X-, Y-, and Z- directions.

The Applicant argues that Gordon, Nanto, and Pham do not teach heating while controlling the temperature of the substrate so the temperature of the substrate does not rise. However, the combination of Kawase and Pham teaches that controlling of the substrate temperature would have been obvious to one of ordinary skill in the art. See discussion above.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ushirogouchi et al. (U.S. Patent Application Publication 2003/0231234) is cited as an example of heating ink jet substrates. Kojima et al. (U.S. Patent Application Publication 2002/0187272, paragraph [0030]) is cited of interest for its teachings regarding moving nozzles and substrates relative to one another.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

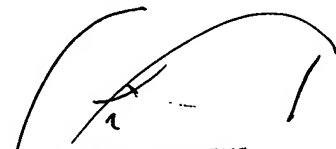
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (571) 272-1418. The examiner can normally be reached on Monday-Thursday, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JL
JL


TIMOTHY MEESKS
SUPERVISORY PATENT EXAMINER